
PART I - ADMINISTRATIVE

Section 1. General administrative information

Title of project

Trout Creek Watershed Improvement Project Multi Year Funding Proposal

BPA project number: 9802800

Contract renewal date (mm/yyyy): 9/1998 ☒ **Multiple actions?**

Business name of agency, institution or organization requesting funding

Jefferson County Soil & Water Conservation District

Business acronym (if appropriate) JCSWCD

Proposal contact person or principal investigator:

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NPPC Program Measure Number(s) which this project addresses

7.1, 7.1D, 7.1D.1, 7.1D.2, 7.6, 7.6A, 7.6A.2, 7.6B.1, 7.6B.2, 7.6B.3, 7.6B.6, 7.7,
7.10.K.1 AND FROM SCIENTIFIC REVIEW: 2,21,22,28,29

FWS/NMFS Biological Opinion Number(s) which this project addresses

Although there has not yet been a final decision regarding the petition to list Mid Columbia River ESU Steelhead. This project would help address "Biological Option" determinations related to habitat and natural production of summer steelhead .

Other planning document references

Edlund R. and C. Penhollow. 1996. Trout Creek Watershed Resource Inventory, Problem Assessment and Treatment Alternatives. Jefferson County Soil and Water Conservation District. 46-84.

Columbia River Intertribal Fish Commission. 1996. Wy-Kan-Ush-Mi Wa-Kish-Wit Spirit of the Salmon The Columbia River Fish Restoration Plan of the Nez Perce, Umatilla, Warm Springs, and Yakima Tribes. Volume II p38.

Oregon Department of Fish and Wildlife. 1997. Lower Deschutes River Subbasin Management Plan. 1-24-5 and 1-34

Northwest Biological Consulting 1983. Trout Creek Restoration. Project No. 83-423. Phase 1 Final Report. Bonneville Power Administration, Portland, Oregon. p15-18

Short description

Implementation of practices that will enhance smolt production and habitat recovery. A Coordinator to work with the watershed Council and local landowners to develop a Long Range Plan and strategies for implementation.

Target species

Summer steelhead, redband trout

Section 2. Sorting and evaluation**Subbasin**

Deschutes River

Evaluation Process Sort

CBFWA caucus	Special evaluation process	ISRP project type
Mark one or more caucus	If your project fits either of these processes, mark one or both	Mark one or more categories
<input checked="" type="checkbox"/> Anadromous fish <input type="checkbox"/> Resident fish <input type="checkbox"/> Wildlife	<input checked="" type="checkbox"/> Multi-year (milestone-based evaluation) <input type="checkbox"/> Watershed project evaluation	<input checked="" type="checkbox"/> Watershed councils/model watersheds <input checked="" type="checkbox"/> Information dissemination <input checked="" type="checkbox"/> Operation & maintenance <input checked="" type="checkbox"/> New construction <input checked="" type="checkbox"/> Research & monitoring <input checked="" type="checkbox"/> Implementation & management <input type="checkbox"/> Wildlife habitat acquisitions

Section 3. Relationships to other Bonneville projects

Umbrella / sub-proposal relationships. List umbrella project first.

Project #	Project title/description
9306600	Oregon Screens
9303000	Buckhollow watershed restoration
9405420	Bull Trout studies
9900600	Bakeoven Riparian Assessment

Other dependent or critically-related projects

Project #	Project title/description	Nature of relationship
9304000	Fifteenmile Cr.habitat restoration	Share equipment and manpower
	Corps of Engineers	Berm removal

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Section 4. Objectives, tasks and schedules

Past accomplishments

Year	Accomplishment	Met biological objectives?
1995	Published Assessment of Trout Creek	Groundwork for Long Range Plan
1998	Installed two infiltration Galleries to address hindered fish passage	Fish passage improvement
1999	Funds for two infiltration galleries in lower Trout Creek	Fish passage improvement
1999	NRCS has declared the watershed a Geographical Priority Area for EQIP funds	Landowners will develop a full conservation plan that will address all resource concerns
1999	Funds for streambank stabilization	decreases sediment

Objectives and tasks

Obj 1,2,3	Objective	Task a,b,c	Task
1	Improve fish passage	a	Eliminate pushup dams
		b	diversion structures
2	Improve uplands treatment	a	Spring developments
		d	Sediment retention basins
		c	Brush control
3	Improve riparian buffer zones	a	Riparian fencing
		b	Enhance and improve streambank stability
		c	riparian revegetation
		d	develop off stream water alternatives
4	Reestablish streambed	a	address berms
5	Evaluate infiltration galleries	a	landowner records of amount of water available and length of irrigation time, maintainence concerns
6	Work with other agencies and	a	Work with Wasco County, COE and

	Counties		ODFW to coordinate improvement efforts of the watershed.
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Objective schedules and costs

Obj #	Start date mm/yyyy	End date mm/yyyy	Measureable biological objective(s)	Milestone	FY2000 Cost %
1	8/2000	7/2001	Improve fish passage		10.00%
2	8/2000	7/2001	Improve uplands treatments		25.00%
3	8/2000	7/2001	Improve riparian buffer zones		25.00%
4	8/2000	7/2001	Reestablish streambed		23.00%
5	8/2000	7/2001	Evaluate infiltration galleries		1.50%
6	8/2000	7/2001	Further develop the Long Range Plan for the watershed.		10.00%
7	8/2000	7/2001	Locate funding for obj. 1-6		5.50%
				Total	100.00%

Schedule constraints

None foreseen

Completion date

Aug. 2001

Section 5. Budget

FY99 project budget (BPA obligated): \$109,000

FY2000 budget by line item

Item	Note	% of total	FY2000
Personnel	The next three amounts include Long Range planning and Project coordination and implementation	% 17	84,000
Fringe benefits	overhead and personnel costs-10% of budget	% 2	10,965
Supplies, materials, non-expendable property	10 miles fencing, 5280 ft. riparian improvement, 300 acres brush	% 23	109,000

	control, 2-3 retention basins,		
Operations & maintenance		%0	
Capital acquisitions or improvements (e.g. land, buildings, major equip.)		%0	
NEPA costs		%2	10,000
Construction-related support	streambed reestablishment,	%45	220,000
PIT tags	# of tags:	%0	
Travel	Planning and implementation	%2	10,000
Indirect costs	3% of budget	%3	14,180
Subcontractor	Wasco SWCD/Planning/Technical support	%2	10,650
Subcontractor	ODFW Planning/Technical support	%3	15,000
Subcontractor		%0	
Other		%0	
TOTAL BPA FY2000 BUDGET REQUEST			\$483,795

Cost sharing

Organization	Item or service provided	% total project cost (incl. BPA)	Amount (\$)
Conservation Resource Program	Resting of erodible soils in the basin	%12	300,000
NRCS	EQUIP	%4	100,000
USFS	new culverts and road obliteration	%13	320,000
Farm Service Agency	Riparian Buffer Rental program(CREP)	%3	85,000
Corps of Engineers	Stream restoration and berm removal	%12	309,000
GWEB	Stream restoration & match funds for COE project	%6	152,000
BPA	Trout Creek Improvement & match funds for COE Project	%18	464,400
NRCS	Engineering and Farm plans	%3	75,000
ODFW	NMFS fish screening and passage	%6	150,000
Landowners	in kind services	%1	25,000
Jefferson County	Bridge and stream bank repair	%3	75,000
Total project cost (including BPA portion)			\$2,539,195

Outyear costs

	FY2001	FY02	FY03	FY04
Total budget	\$350,000	\$375,000	\$400,000	\$425,000

Section 6. References

Watershed?	Reference
<input type="checkbox"/>	Ames, C.R. 1977. Wildlife conflicts in riparian management: Grazing. In : Importance, Preservation and Management of Riparian Habitat. USDA Forest Serv. Gen. Tech. Rep. RM-43:39-51
<input type="checkbox"/>	Armour, C.L., D.A. Duff, and W. Elmore. 1991. The effects of livestock grazing on riparian and stream ecosystems. Fisheries 16:7-11.
<input type="checkbox"/>	Behnke, R.J. and R.F. Raleigh. 1978. Grazing and the riparian zone: Impact and management perspectives. P184-189. In: Strategies for Protection and Management of Floodplain Wetlands and Other Riparian Ecosystems. USDA Forest Serv. GTR-WO-12
<input type="checkbox"/>	Beschta, R.L., W.S. Platts, J.B. Kauffman, and M.T. Hill. 1994. Artificial stream restoration-money well spent, or and expensive failure? Universities Council on Water Resources Annual Conference, Big Sky Montana, 2-5 August 1994. University of Illinois,
<input type="checkbox"/>	Bryant, F.T., R.E. Blaser, and J.R. Peterson. 1972. Effect of trampling by cattle on bluegrass yield and soil compaction of a Meadowville Loam. Agron. J. 64:331-334
<input type="checkbox"/>	Cairns, J. Jr. 1993. Is restoration ecology practical? Restor. Ecol. 1:3-6.
<input type="checkbox"/>	Davis, J.W. 1982. Livestock vs. riparian habitat management there are solutions. P175-184. In: Wildlife-Livestock Relationships Symposium: Proc. 10. Univ. of Idaho Forest, Wildlife and Range Exp. Sta. Moscow.
<input type="checkbox"/>	Evans, Keith E., and Rodger R. Krebs. 1977. Avian use of livestock watering ponds in western South Dakota. USDA Forest Serv. Gen. Tech. Rep. RM-35.
<input type="checkbox"/>	Everest, F.H., and W.R. Meehan. 1981. Forest management and anadromous fish habitat productivity: Tran. 46th North Amer. Wildlife and Natural Resource Conf. 1981 Wildlife Mgmt. Inst. Wash., D.C.
<input type="checkbox"/>	Fleischner, T.L. 1994. Ecological costs of livestock grazing in western North America. Conserv. Bio. 8:629-644.
<input type="checkbox"/>	Green, D.M. and J.B. Kauffman. 1995 Succession and livestock grazing in a Northeast Oregon riparian ecology. J. Range Manage. 48:307-313.
<input type="checkbox"/>	Gunderson, D.R. 1968. Floodplain use related to stream morphology and fish populations. J. Wildl. Manage. 32:507-514
<input type="checkbox"/>	Johnson, D.R., H.L. Gary, and S.L. Ponce. 1978. Range cattle impacts on stream water in the Colorado Front Range. USDA Forest Serv. Res. Note RM-359
<input type="checkbox"/>	Kauffman, J.B. and W.C. Krueger. 1984. Livestock impacts on riparian ecosystems and stream management implications: a review. J. Range Manage. 37:430-437.

<input type="checkbox"/>	Kauffman J.B., R.L. Beschta, N. Otting, and D. Lytjen. 1997. An ecological perspective of riparian and stream restoration in the Western United States. Fisheries. Vol.22 No.5 p12-24
<input type="checkbox"/>	Knoph, F.L., and R.W. Cannon. 1982. Structural resilience of a willow riparian community to changes in grazing practices. P. 198-209. In: Wildlife-Livestock Relationships Symposium: Proc. 10. Univ. of Idaho Forest, Wildlife and Range Exp. Sta. Moscow, Id
<input type="checkbox"/>	Marcuson, P.E. 1977. The effect of cattle grazing on a brown trout stream in Rock Creek, Montana. Fish and Game Fed Aid Pro. F-20-R-21-11a
<input checked="" type="checkbox"/>	Northwest Biological Consulting 1983. Trout Creek Restoration. Project No. 83-423. Phase 1 Final Report. Bonneville Power Administration, Portland, Oregon.
<input type="checkbox"/>	Oregon-Washington Interagency Wildlife Council. 1978. Managing riparian zones for fish and wildlife in eastern Oregon and eastern Washington. Unpub.
<input type="checkbox"/>	Platts, W.S. 1979. Livestock grazing and riparian stream ecosystems. P. 39-45. In Proc., Forum—Grazing and Riparian Stream Ecosystems. Trout Unlimited, Inc.
<input checked="" type="checkbox"/>	Platts, W.S. 1981. Influences of forest and rangeland management on anadromous fish habitat in western North America. Effects of livestock grazing. USDA Forest Serv. Gen Rep. PNW-124.
<input type="checkbox"/>	Platts, W.S. 1991. Livestock grazing. P. 389-483 in Influences of forest and rangeland management on salmonid fishes and their habitats. Am. Fish. Soc. Spec. Publ. 19, Bethesda, Md.
<input checked="" type="checkbox"/>	Pond, F.W. 1961. Effects of three intensities of clipping on the density and production of meadow vegetation. J. Range Manage. 14:34-38.
<input checked="" type="checkbox"/>	Rauzi, F., and C.L. Hanson. 1966. Water intake and runoff as affected by intensity of grazing. J. Range Manage. 19:351-356.
<input type="checkbox"/>	Trout Creek Watershed Analysis Report, 1995. USDA Forest Serv. Ochoco National Forest
<input type="checkbox"/>	

PART II - NARRATIVE

Section 7. Abstract

In the early 1980's the Trout Creek Basin was described as "unraveling". Landowners were complaining that they were losing more and more acres of fields to the creek. In 1983 Buell and Associates conducted a comprehensive physical habitat survey of the basin. The survey found that there was poor riparian cover, large amounts of eroding banks, and low instream habitat diversity. Cost benefit analysis (also done by Buell and Assoc.) determined stream reaches that would demonstrate the best recovery of instream habitat. Consultants and engineers then developed restoration plans for the reaches that

met the cost benefit analysis. This came complete with detailed schematics of individual structures at each site.

The Trout Creek Project is a project directed by ODFW and is an operating "on the ground" project that has followed the restoration plan developed in 1983. ODFW has worked to install and maintain over 70 stream miles of riparian fencing that has helped to increase the viability of the riparian area by excluding livestock. Installation of instream structures within the Trout Creek basin has also served to decrease actively eroding streambanks and has contributed to increasing the instream habitat complexity. The overall goal of the project is to develop a Watershed Improvement Plan with prioritized projects that will coordinate with efforts of local landowners, State and Federal agencies to increase the number summer steelhead and improve habitat conditions. Portions of Trout Creek Watershed are located in Wasco County (110,000 acres), Wasco SWCD will be participating in the Long Range Planning and implementation of projects in that portion of the watershed. The goal of this project will be accomplished through continued Planning and implementation of habitat improvement work. Educating the landowners with information to improve irrigation management with emphasis being placed on amount and timing of water withdrawal/ application. This Long Range basin planning project will serve to reevaluate and concentrate activity on remaining limiting factors in the basin. Also by improving the riparian and instream habitat this project is also benefiting numerous wildlife species. It is believed that the riparian /streamside ecosystem is the single most productive type of wildlife habitat, benefiting the greatest number of species (Kauffman and Krueger, 1984).

Year 2000 project tasks are : **1)** Improve fish passage by elimination of pushup dams and improved irrigation methods **2)** Improve uplands management that will increase water retention and control sediment in the basin. **3.)** Improve and increase riparian buffer zones. Increase riparian fencing, improve livestock management practices, Water development, brush control and revegetation of riparian areas. **4.)** Reestablish streambed by working with the COE & GWEB to address berms. **5.)** Evaluate infiltration galleries installed in fall of 1998. **6.)** Continue to finalize the Long Range Plan for the watershed. **6.)** Work with other granting sources to accomplish additional basin wide habitat enhancement projects. Utilizing the watershed approach in achieving this goal will also benefit native resident redband trout and the multitude of wildlife species that are dependent on riparian areas.

The expected outcome is to reduce fine sediment input, increase riparian shading, reduce summer stream temperatures, improve instream habitat complexity, and increase late season flows. As a result of these measures it is expected that steelhead, resident redband trout and several wildlife species will increase in numbers. The time frame for the desired outcome for each habitat component is variable. The uplands are a concern and will be addressed by developing water control basins, sediment retention basins and developing water sources, pasture fencing, brush control and improved livestock management through education for landowners. Areas identified in the 1998 stream physical habitat survey will be addressed by riparian fencing, revegetation and streambed reestablishment The Jefferson County SWCD will hire a full-time (1999) Coordinator to work with local Watershed Councils, ODFW, other agencies and interested entities to

implement the Plan. Trout Creek Watershed Council and ODFW will participate in the development and implementation of project priority. Potential funding sources are: Corps of Engineers, a streambed reestablishment project that will address the berms placed in the creek after the 1964 floods, Farm Service Program that “rents” riparian areas based on soil types and former use (CREP), GWEB has granted funding for stream bank stabilization, improved irrigation practices (two infiltration galleries that will replace push up dams), GWEB has also expressed a willingness to match some of the funds for the COE project. The JCSWCD and Watershed Coordinator will continue to seek funds for implementation of the Plan.

Section 8. Project description

a. Technical and/or scientific background

Trout Creek is the largest eastside tributary in the Deschutes River below Pelton Dam, entering the Deschutes at river mile 88.5. For the past 125 years the Trout Creek Basin has been severely degraded by intensive livestock, agricultural, and timber management practices. In reaches where there is heavy irrigation withdrawal, and poor riparian habitat stream temperatures can reach 31°C (ODFW unpublished data, 1996). Historically the Trout Creek basin supported Chinook, steelhead and resident redband populations. In 1981 the basin only supported a run of about 250 adult summer steelhead (USBR, 1981). The degraded habitat of Trout Creek has been the primary factor for the declining production of salmonids (Northwest Biological Consulting, 1983). There are approximately 140 stream miles in the watershed and about 85% of those miles have riparian problems. There is potential for improvement with rehabilitation on about 120 stream miles (U.S. Fish and Wildlife Service and National Fish and Wildlife Service, 1981). Cattle grazing appeared to be a significant limiting factor for riparian vegetation (NBC, 1983). Livestock grazing has been perhaps the most prevalent cause of ecological degradation for many western riparian and stream ecosystems (Kauffman and Krueger 1984, Kauffman 1988, Fleischner 1994). After extensive field reviews of fish habitat improvement projects in eastern Oregon, Beschta et. al. (1991) and Kauffman et al. (1993) concluded that the cessation of livestock grazing in riparian zones in eastern Oregon was the single most ecologically effective approach to restoring salmonid habitats. (source: ODFW)

Restoration efforts on these areas has the potential to make Trout Creek one of the highest producer of wild anadromous stocks for the lower Deschutes River. Since the Deschutes river supports several of the largest remaining stocks of wild runs of anadromous fish in eastern Oregon, the significance of Trout Creek is further emphasized (NBC, 1983). In 1998 ODFW conducted a steelhead smolt-trapping project near the mouth of Trout Creek. The trapping yielded an estimate of 73,000 (+/-13,000) smolts (ODFW unpublished data). From this data it is easy to see that the Trout Creek basin provides spawning and rearing area for at least 25% of the wild summer steelhead above Sherars Falls. For comparison, the best year for wild summer steelhead smolts estimated in the Hood River is only 30,000.

This Trout Creek project is proposed to be an ongoing Deschutes Basin improvement project. This project is designed to restore and improve riparian and instream habitat, retain water in the watershed, improve upland conditions and improve livestock management practices. All the improvements are designed to enhance and increase riparian habitat, benefit summer steelhead, redband trout and wildlife by providing increased cover and forage along the improved riparian areas. This project will work closely with ODFW to enhance the goals they have for fish and wildlife habitat improvements.,

The Trout Creek Improvement project addresses several habitat and water related aspects. In the 1983 study of the Trout Creek basin several habitat problems were identified. This project will decrease the erosion taking place in riparian areas by addressing focusing on concerns in the uplands. The Plan will develop projects to address these concerns.

1) Erosion

- ◆ Install riparian exclosure fencing that will eliminate cattle grazing on stream, and help to stabilize streambanks.
- ◆ Implement appropriate stream bank stabilization methods, shaped banks, planting willows, reseed.
- ◆ Rock jetties to deflect stream from highly erodible areas(where deemed necessary).
- ◆ Create off channel watering sites: spring development and pasture management.
- ◆ Design and install sediment and water control basins.
- ◆ Implement brush control
- ◆ Work to reestablish streambed. COE & GWEB will provide partial funding.
- ◆ Methods for water delivery will be reviewed and more efficient methods analyzed.
- ◆ Seek assistance from other agencies in correction of habitat concerns.
- ◆ Continue to work with and provide education to private landowners to solve remaining problems.

The reduction of steelhead populations partially caused by the hydropower projects on the Columbia River has increased the importance of Trout Creek as a wild summer steelhead producer

Personnel from this project will provide technical assistance for watershed improvement to private landowners, Trout Creek Watershed Council and other interested agencies. There are several entities working with JCSWCD to provide, or attempting to provide watershed improvements in the Trout Creek Basin. COE, GWEB, ODFW and BPA. NRCS and Farm Service are utilizing programs to address conservation in the watershed. NRCS has declared Trout Creek a Geographical Priority Area (GPA) for their Environmental Quality Incentive Program (EQIP) and will be developing full farm plans for landowners and providing \$100,000 for implementation. The plans are to address water quality and quantity, wildlife issues and livestock management. Personnel funded by this Watershed Improvement project will assist in identifying and implementing these opportunities. Also personnel funded by this project will assist and coordinate the augmentation of the current habitat projects through other granting sources.

There is a large quantity of work to be accomplished in regard to instream and riparian restoration. Stream reaches need better livestock, and timber management. Sediment input from logging roads needs to be addressed, and several areas throughout the basin are in need of additional habitat work. The timber managers are working with the Council to address these concerns. The greatest challenge to a significant recovery involves irrigation water withdrawal methods. The use of water can significantly reduce stream flow. This problem affects almost every stream in areas of the arid Western United States. This project proposes to decrease the use of push up dams as an irrigation method and will monitor the efficiency of two installed infiltration galleries as an alternate means of water withdrawal. This coordinated project is necessary for several reasons:

1. Trout Creek provides 25-33% of the wild summer steelhead production in the Deschutes Basin
2. Trout Creek is the largest east side anadromous tributary to the Deschutes, providing genetic diversity to an important east side life history of wild summer steelhead.
3. A significant investment by BPA of over 4 million dollars had been spent in the Basin. Protection of this investment through continued support is vital to the watershed and related fisheries.
4. This type of restoration effort meets several criteria and goals stated in the 1994 FWP and in numerous IRSP recommendations.
5. ODFW states the progress towards the goal of 100,000 smolts is occurring. Given USBR estimate of 250 adults (25,000 smolts) in 1981 and the trapping of 73,000 smolts in 1998 (using a 1% return, which is conservative for wild smolts) they are approaching the goal of 100,000 smolts.

b. Rationale and significance to Regional Programs

This program is designed to enhance wild summer steelhead in the Columbia Basin. Habitat restoration of this type will help to avoid a steelhead listing in the Mid Columbia Basin ESU.

This project is consistent with the following aspects of the 1994 FWP:

Section 7.1 ensuring the biodiversity of the ecosystem, thereby sustaining the natural resources.

This project is addressing ecosystem problems throughout the entire sub-basin. A majority of the work in this sub-basin has centered on the riparian or instream area. In eastern Oregon riparian areas provide the highest areas of biodiversity in the ecosystem. Maintaining and restoring this area is the first step in ensuring the biodiversity. While the riparian areas are critical, the Trout Creek Watershed Council and NRCS are working on farm plans that will address upland issues as they have a direct relationship to the quality of the riparian areas. ODFW, and NRCS are currently educating landowners through presentations in front of the watershed council, and through the development of individual farm plans.

Section 7.1 and 7.1D.1 and 7.1D.2 Wild and naturally spawning population policy

The this project addresses the goal and intent of this section. The habitat restoration and protection of this native, naturally reproducing salmonid population in the Trout Creek sub-basin will serve to enhance and protect the future of this population. It should also be noted that the 1998 wild summer steelhead smolt trapping yielded 73,000 smolts migrating from the Trout Creek Basin. This represents a significant portion of the wild summer production in the entire Deschutes Basin.

Section 7.6, 7.6A, 7.6A.2, 7.6B.1, 7.6B.2, 7.6B.3, 7.6B.,7.6B.4, 7.6B.5, 7.6B.6 Habitat goal, policies and objectives.

This projects goals address all the objectives listed above. This project coordinates work with ODFW, Jefferson County SWCD, Trout Creek Watershed Council and Wasco Co. SWCD to include the proposed projects in an overall framework for improvement of the entire sub-basin. The prime habitat in the sub-basin has been identified by ODFW and is already under protection by their on-going projects. Support of this project will enhance and reinforce the integrity of this prime habitat. The remaining habitat in this basin is either being improved, or is awaiting funding to address additional improvement projects. Projects are being developed and reviewed through the watershed council and other local landowners. Areas where restoration has a minimal chance for success will be delayed until higher priority projects have been completed. Cost sharing and additional funding sources, along with volunteer help is being explored and utilized.

Section 7.7 Cooperative habitat protection and improvement with private landowners.

The majority of the improvement work in the watershed is on private lands, This project is being developed with the cooperation of private landowners. Through the Watershed Council, private landowners, ODFW, OSU extension, and other agencies meet on a monthly basis to discuss the approach and direction that habitat restoration will be taking. The watershed Council, ODFW, JCSWCD and landowners will prioritize concerns and assist in implementation of this project.

This Project also relates to the following planning documents:

Edlund R. and C. Penhollow. 1996. Trout Creek Watershed Resource Inventory, Problem Assessment and Treatment Alternatives. Jefferson County Soil and Water Conservation District. 46-84.

Columbia River Intertribal Fish Commission. 1996. Wy-Kan-Ush-Mi Wa-Kish-Wit Spirit of the Salmon The Columbia River Fish Restoration Plan of the Nez Perce, Umatilla, Warm Springs, and Yakima Tribes. Volume II p38.

Northwest Biological Consulting 1983. Trout Creek Restoration. Project No. 83-423. Phase 1 Final Report. Bonneville Power Administration, Portland, Oregon. p15-18

c. Relationships to other projects

This project will help to coordinate and develop additional projects with several NGO's and various other state and federal agencies (i.e. Oregon Trout, Jefferson County SWCD, Trout Creek Watershed Council, Wasco County SWCD, BOR, Water Resources, OSP, DOF, BLM, USFS, Corps of Engineers, et.al.). Additional projects have been jointly developed with ODFW. ODFW, NRCS and Wasco Co. SWCD have been instrumental in assisting in the development of further planning and improvement efforts in the basin.

The Oregon Screens project (#9306600) is responsible for the removal of fish passage barriers in the basin. The technical expertise and sharing of equipment from the ODFW Trout Creek Restoration project has been instrumental in the execution of this project.

This project will work with ODFW to share resources from the Fifteenmile Habitat Restoration Project, and the Oregon Screens Project (Project #9306600). Personnel, equipment, facilities, and expertise from the ODFW Trout Creek Habitat project and the Mitchell Act project will be utilized in execution of the Watershed Improvement Plan.

Wasco Co. SWCD will use the expertise garnered from the Buckhollow project (9303000) to assist in the Planning and implementation of this project. The two watersheds are similar in concerns and needs. Approximately 110,000 acres of Trout Creek watershed lies in Wasco Co. Both Jefferson SWCD and Wasco SWCD strives to accomplish the same goals for the watershed.

COE has extended an offer to fund \$300,000 for a project to address the berms placed in Trout Creek when it was channalized in 1964. The COE has agreed to work with the Council, JCSWCD to coordinate this project with the Long Range Plan for the watershed.

GWEB has funded \$152,000 for irrigation improvements, streambank stabilization and matching funds for COE project.

NRCS has declared the watershed a Geographical Priority Area (GPA) for Environmental Quality Incentive Program (EQIP) funds for \$100,000. These funds will assist private landowners to address concerns for water quality and quantity with irrigation improvements, uplands treatments and livestock management and riparian improvements.

The Buckhollow project in Wasco County is improving the basin watershed with similar projects that we have proposed in this project. Wasco County SWCD will assist with planning and implementation of the Trout Creek watershed projects that are located in Wasco County.

d. Project history (for ongoing projects)

The JCSWCD hired a part-time Coordinator in 1997 and they have worked with the Watershed Councils, SWCD, NRCS and ODFW to form two Councils in Jefferson County. The Watershed Councils have progressed to the point they are in need of a full-time Coordinator to develop Long Range Plans and coordinate implementation of projects. The Trout Creek Watershed Improvement project began in 1998. The first phase of the project installed two infiltration galleries, one in mid Trout Creek (Ashwood) and one in Lower Trout Creek (Willowdale). The galleries were installed to replace push up dams as the primary means of irrigation. They will be monitored and evaluated over 1998/99 to assure they are an appropriate alternative methods of water withdrawal. Push up dams are a major means of irrigation water withdrawal in this sub-basin and present a major hindrance to fish passage. The 1998/99 phase includes funds to hire a full-time Coordinator who will work with Councils and other agencies to develop a final draft of the Watershed Improvement Plan and oversee implementation of priority projects. JCSWCD has a watershed technician that will be designing, overseeing projects, assisting in the planning process. **GWEB 1999** funds include two infiltration galleries and streambank stabilization. In **1998/99 COE** presented the JCSWCD and Council with a proposal to address the berms placed in Trout Creek after the 1964 floods. The proposal is estimated to cost \$300,000 and GWEB has indicated they have some matching funds for the COE project. **NRCS** has declared Trout Creek a GPA (Geographical Priority Area) for the Environmental Quality Improvement Program (EQIP) funds of \$100,000. NRCS will develop complete farm conservation plans to determine landowner concerns and the best means to address them. Wasco Co. SWCD will assist Jefferson Co. SWCD in addressing the tributaries located in Wasco Co. namely Antelope Creek and Ward Creek. On the ground construction began in 1998, and will continued as funding becomes available. JCSWCD will work with the stakeholders in the improvement of the Trout Creek watershed by seeking funding, supplying technical, advisory and administrative support.

ODFW and other agencies that are involved with the watershed council and/or have assisted in on the ground projects include: Oregon Trout, Jefferson County SWCD, ODFW Restoration and Enhancement, ODFW Access and Habitat, Bureau of Reclamation, Governor's Watershed Enhancement Board, US Forest Service.

e. Proposal objectives

- 1) To improve fish passage by replacing pushup dams with infiltration galleries or other appropriate alternative methods. This will eliminate the need to be instream several times a year for construction and maintenance of dams. Fish spawning beds will not be disturbed or destroyed. Eliminating pushup dams will allow revegetation of riparian areas and decrease sedimentation. Working to reestablish streambed stability will decrease sediment and improve fish spawning and rearing habitat.

- 2) By improving uplands management and habitat with 300 acres of brush control, the riparian areas will see an improvement. Construction of 2-3 retention basins will catch sediment and excess water runoff. Development of 6 pasture and spring improvements will encourage livestock away from the stream. Develop improved livestock management plans and pasture development.
- 3) Increase riparian stability and streambank stabilization using increased vegetation plantings and seeding along 5,280 ft. of stream. Increasing riparian fencing by 10 miles.
- 4) Work with COE , ODFW and private landowners to reestablish streambed. COE will address the berms placed in the creek after the 1964 floods. The project will coordinate with the proposed project and planning in the watershed. Addressing the berms will also decrease sediment created by velocity built up and aided by the berm locations.
- 5) Evaluation of the two infiltration galleries placed in Trout Creek in 1998 will determine if this alternative irrigation method is viable for Trout Creek.
- 6) Further development and refining of the Long Range Plan. Prioritization of projects that will continue to be of major benefits to the watershed and the basin.
- 7) JCSWCD and the Coordinator will continue to seek funding sources for project implementation. Build relationships with local, state, federal and other interested entities.

f. Methods

Objective 1 The Council, ODFW and local landowners will explore alternative methods of irrigation. The major method at this time is gravel pushup dams. JCSWCD sought funding to install two infiltration galleries. One was installed in mid-Trout Creek (Ashwood) and one in lower Trout Creek (Willowdale) These will be evaluated over the irrigation season of 1999 and if proven reliable will be installed in several places in Trout Creek. An infiltration gallery consists of perforated pipe being placed over a gravel bed approximately 4-6 feet under the streambed, overlaid with gravel, geotextile fabric and another layer of gravel. Depending on location, rock riprap may be placed over entire installation. Each gallery is designed by NRCS and is site specific as determined by NRCS Geologist, Engineer and Cultural Resources Specialist. The gallery is designed with an out of stream pumping gallery (upright pipe) and water is then pumped to a water management system. . Installation of these structures will benefit the system in two ways. One, it will remove fish passage problems that begin with the annual installation of gravel push up dams. Second, it will assist the recovery of the riparian area. This will benefit the seasonal movement of juvenile steelhead within the basin.

Objective 2 Upland management thru 300 acres of brush control, 2-3 retention basins for controlling sediment and excess water runoff. Past livestock grazing practices have been perhaps the most prevalent cause of ecological degradation for many western riparian and stream ecosystems (Kauffman and Krueger 1984, Kauffman 1988, Fleischner 1994). There are several reports and journal articles that indicate improper cattle grazing as one of the most destructive impacts on stream morphology, water quality, sedimentation, and riparian vegetation (Ames 1977, Behnke and Raleigh, 1978, Bryant 1972, Davis 1982, Evans and Krebs 1977, Everest and Meehan 1981, Gunderson 1968, Johnson 1978, Knoph and Cannon 1982, Marcuson 1977, Oregon and Washington Interagency Council 1978, Platts 1979, Platts 1981, Pond, 1961, Rauzi and Hanson 1966). One of the major goals of the Council is to improve livestock management practices so the benefit landowners and watershed health. This grant will allow uplands improvement with 2-3 retention basins, 300 acres of brush control, 6 pasture/ spring developments. Trout Creek Watershed Council will work with ODFW, GWEB and other fund sources to develop upland projects. Development of a watershed wide habitat/restoration priority list is currently being developed. This will help in directing future projects to further enhance summer steelhead and resident redband trout populations in the basin.

Objective 3 Improvement of riparian buffer zones with vegetation using willows and other native species. This project will allow 10 additional miles of riparian fencing. A new program(CREP- Conservation Reserve Enhancement Program) directed by Farm Service Agency will allow the landowner to plant grasses, trees and shrubs and then “rent” the land from the landowner. The landowner will maintain the riparian area in a non use fashion. Landowners have expressed an interest in this program.

Objective 4 The COE has offered to assist in the reestablishment of a more defined streambed. GWEB is also offering to match some of the funding required for this phase of the project. ODFW, COE, watershed council and local landowners will work to develop a plan for addressing the berms and proceeding with the project.

Objective 5 The two installed infiltration galleries will be monitored by landowner, SWCD staff and ODFW to be sure this alternative method of irrigation is not detrimental to stream flow or fish habitat. The galleries will be monitored through a winter of high flows and an irrigation season before proceeding with plans to use this type of irrigation diversion.

Objective 6 The Watershed Coordinator, JCSWCD, Trout Creek Watershed Council and ODFW will continue the development of a Long Range Plan, project identity and priorities for final draft. The Coordinator will work with adjacent county watershed Coordinators for portions of the watershed located in those counties.

Objective 7 The Watershed Coordinator will continue to seek funding sources for implementation of the Long range Plan for the watershed.

g. Facilities and equipment

Facilities:

Office space located in the USDA Service Center in Redmond, Or.

Coordinator: 125 sq. ft (Pd. By grant sources)

SWCD Technician 125 sq.ft (Pd. By grant sources)

SWCD Office Manager 100 sq.ft. (supplied by NRCS)

Equipment:

2 Computers: one 486 200Mhz IBM office desk top (Office Manager)

one PII266Mhz laptop (Technician)

2 Color Printers

Scanner

Survey Equipment (shared with Deschutes County SWCD)

Camera

Additional Equipment provided by NRCS: Copiers, Fax

h. Budget

1) Personnel:

Watershed Project Coordinator: \$ 36,000

12 mo. @ 2500.00x1.2 (Planning/Implementation)

Watershed Technician: \$ 36,000

12 mo. @ 2500 x1.2 (Conservation plans/designs)

SWCD Office Manager: \$ 12,000

4 mo. @ 2500x1.25 (Administer grant/clerical, and sub-contracts)

Wasco SWCD: \$ 10,650

3 mo @ 2840 x1.25 (Planning and implementation)

ODFW: \$ 15,000

5 mo @ 2500 x1.25 (Planning, implementation and technical)

Benefits @ overhead and personnel costs

10% of base wages \$ 10,965

2) Travel: (planning/implementation) \$ 10,000

3) 6 pasture/spring developments @\$3,000 \$ 18,000

4) 10 miles of riparian fencing@ \$4,000 \$ 40,000

5)	300 acres of upland brush @ \$20 acre	\$ 6,000
6)	2-3 retention basins/constructions @ \$5,000	\$ 15,000
7)	5280 ft of riparian revegetation	\$ 30,000
8)	Streambed reestablishment (demo) and match funds for COE project	\$ 220,000
9)	Indirect Costs @ 3% of total budget	\$ 14,180
10)	NEPA expenses	\$ 10,000

Personnel

Long Range Planning and Implementation -

- 1) Personnel time for coordination and direction of the Trout Creek Basin long range plan (24 person months/yr.).
(Coordinator and Technician)
- 2) Personnel for administering grants, planning data and reports
(Office Manager) 4 person months/yr

Evaluation -

- 1) Personnel time for evaluating infiltration galleries and other implemented projects. (3 person weeks/yr.).
- 2) NEPA requirements

Fringe Benefits

- 1) Overhead and Personnel expense related to above personnel needs. Figured at 10% of base salary.

Supplies, Materials, Nonexpendable Property

- 1) Equipment and Supplies related to fencing, brush control, streambed reestablishment, riparian vegetation, water development and control basins.

Operations and Maintenance

- 1) Operations and maintenance will be provided by landowners with assistance from JCSWCD in seeking funding sources and providing technical assistance.

Capital Acquisitions or Improvements

- 1) None foreseen

Indirect Costs

- 1) The indirect cost is estimated to 3% of funds requested.

Section 9. Key personnel

Personnel	Title	FTE
Watershed Coordinator To be hire in Feb. 1999		100.
Duties: Responsible for development of Long-Range watershed improvement planning, identifying priority projects and implementation of habitat restoration projects in Trout Creek and Willow Creek watersheds. Facilitate Council meetings. Meet with landowners, local, state and federal agencies to develop a working relationship for project assistance and funding sources. Grant writing for projects. Project management as implementation progresses.		
Adam Haarberg	Watershed Technical Specialist	100.
<u>Education</u> 9/93-4/96 Oregon State University; Corvallis, Oregon Bachelor of Sciences in Rangeland Resources, March 1996 6/91-6/93 Alan Hancock College, Santa Maria, Ca. Completed general Ed. courses		
<u>Training</u> NRCS Conservation Planning		
<u>Experience:</u> 3/98- current: Working with landowners to develop conservation farm plans and designing infiltration galleries with direction from NRCS. Survey projects under direction of NRCS. 6/95-9/95 Umatilla National Forest Range technician: Set up baseline monitoring data along streams and riparian zones using the Greenline method.		
<u>Duties</u> Develop conservation farm plans and assist landowner with alternative methods of reaching landowner goals. Assist Coordinator in Long Range Planning and implementation of watershed improvement projects. Project design and management.		
Marie Horn	Jefferson Co. SWCD Office Manager	.33
Experience:		

3/1996-current: Responsible for all general duties of Office Manager, up to and including all management of funds, payroll and related duties. Marie has served as part-time Watershed Coordinator for 1½ years in development of two watershed councils and projects funded in watershed. The Coordinator responsibilities have been developed into a full-time position. The Jefferson County SWCD will be responsible for all financial record keeping and accounting to fund sources. Marie supervises both the Watershed Coordinator and Watershed Technician as SWCD employees.

Tom Nelson

ODFW

.45

Education

1984 – 1989 Oregon State University; Corvallis, Oregon
Degree: B.S. Agricultural Resource Economics

1993 – 1994 Oregon State University; Corvallis, Oregon
1 year masters level fisheries coursework

Training

Northwest Fish Screening and Passage Workshops
Proper Functioning Condition Workshop
ODFW and USFS stream survey training

Experience

April 1997-Present, Oregon Department of Fish & Wildlife; Assistant Project Leader on Trout Creek Habitat Restoration Project

Duties

Will assist the Council and Coordinator in Long Range planning and implementation of priority projects.

Ron Graves

Wasco SWCD

.25

Experience: Ron Graves is the Wasco SWCD District Manager. He has held this position for approximately 9 years. The Buckhollow Watershed Project has been directed by Ron.

Duties: Ron Graves will participate in this project in the portion of the watershed that lies in Wasco county. Ron will contact each landowner in that area and assess needs and concerns and offer alternative practices. These concerns will be incorporated into the overall watershed Improvement Plan. Ron will work with the planning group on the Long Range Plan and implementation of priority projects.

Education: MS Meteorology and Oceanography; Naval Post Graduate School, Monterey, Ca. Dec. 1982

Section 10. Information/technology transfer

All information that is developed and planned will be shared with all watershed Councils, JCSWCD, ODFW and other interested entities as requested. Project plans and progress will be reported and published in local newspapers, OSU extension newsletters and FSA newsletters.

Congratulations!